REMARKS/ARGUMENTS

Claims 1-12 were pending in this application and have been cancelled. New claims 13-24 have been added. Applicants respectfully request reconsideration of the application for the foregoing reasons.

I. Rejections under 35 U.S.C. §102

The Office Action rejected claim 1 as being anticipated by US Patent No. 6,550,0533 to Muckley (hereafter "Muckley"). Claim 1 has been cancelled without prejudice and replaced with a new claim 13. Claim 13 is similar to the cancelled claim 1 but it uses the term "properties" instead of "implementation properties." The specification states that: "it should be understood that the term 'property', with respect to an object or component of a computer program, is broad, and includes narrower terms such as 'location', 'parameter', and 'implementation'. In turn, 'implementation' includes 'data representation' such as 'string representation' (e.g. ASCII, EBCDIC, UNICODE) and 'data structure' (e.g. hash, tree, compressed). Thus, it will be understood that 'implementation' does not encompass 'location', nor 'parameter,' within its meaning. Moreover, in the context of the present invention, 'object', 'entity', and 'component' shall be interpreted as having substantially the same meaning, while 'library' shall be understood to mean a group of object definitions or component definitions." See paragraph 19 of Patent Application Publication US2002/0111697. Therefore, the use of "property" makes claim 13 broader than claim 1 and is supported by the specification.

Claim 13 recites a method for minimizing total cost of interaction among components of a computer program comprising steps of:

a) carrying out at least a partial run of the program;

b) monitoring the at least partial run of the program to measure an amount of interaction between each pair of components;

c) determining a cost of interaction between each pair of interacting components;

d) determining a choice of properties which minimizes total cost of the at least partial run;

e) assigning the choice of the properties to the components for a subsequent at least

partial run of the program.

Applicant respectfully submits that Muckley neither teaches nor suggests the invention as set forth in new claim 13. As discussed in response to a prior office action, Muckley neither measures an amount of interaction between components nor does it determine a cost of interaction between components. The Office Action cited col. 2, lines 48-50 of Muckley as corresponding to element b). However, neither that section of Muckley nor the rest of the teachings disclose or discuss the limitations of element b). Col. 2, lines 48-50 of Muckley relates to analyzing a new object-oriented design as part of a method to estimate the time that it would take a designer or group of designers to realize a new design. That has nothing to do with measuring **interaction** between software components. In fact, the Office Action has not identified anything in Muckley as corresponding to **interactions** between pairs of components. Certainly, col. 2, lines 48-50 does not. That part of Muckley sets forth a step in a "method of estimating the time a particular designer or any group of designers will take to realise [sic: realize] a new design using an object oriented methodology." See col. 2, lines 8-11. For example, the word "Analyzing" does not correspond to the claim language "measure an amount of interaction" and the Office Action has not carried its burden of showing how it would. Rather it is clear from the context in which the word "analyzing" appears that the analysis relates to the time that a designer would take to produce a design using an object oriented approach. This is wholly irrelevant to the claimed subject matter and it would not be inherent in Muckley to measure an amount of interaction because the process of Muckley would not have anything on which to use that information

The Office Action cites col. 3, line 67- col. 4, line 2 as relating to claim element c). This citation to Muckley appears to be in error, so Applicant responds to the quoted language as it appears in col. 2, line 67-col. 3, line 2. Applicant respectfully submits that neither the cited portion of Muckley nor any other part thereof relates to the subject matter of element c). Rather the quoted "values for the respective multipliers" relate to a designer or group of designers that are to design an object-oriented design. The rest of the sentence quoted by the Office Action negates the suggested interpretation made by the rejection. Thus, the Office Action omits that the multipliers "are calculated from the numbers of the object-oriented elements of each type

that the particular designer or group of designers employed in a plurality of previous designs ..." (emphasis added on the part omitted). Again, that has nothing whatsoever to do with determining a cost of interaction between pairs of components and the Office Action has failed to show how it purports that it does. Although the time that it will take a designer or group of designers to implement an object-oriented design may be a cost of some type, it is not a **cost of interaction** between each pair of components. Designers or groups of designers are not "components" of a program and the Office Action has not shown where Muckley even hints (let alone teach) any interacting components. Muckley discusses the number of objects or object-oriented elements employed in previous designs by a designer or group of designers (this is apparently the so-called numbers data, see col. 2, lines 12-16) but it says **nothing** about any determination of interactions among those objects or elements, let alone any costs associated with interactions.

The Office Action cites col. 2, lines 24-28 as relating to element d). Element d) requires "determining a choice of properties which minimizes a total cost of the at least partial run. Applicant respectfully submits that neither the cited portion of Muckley nor any other part thereof relates to the subject matter of element d). Rather the cited portion relates to adjusting the values of multipliers in calculation of time that a designer or group of designers would take to complete a design and more particularly to applying numbers data (regarding the number of object oriented elements) to a formula. That has nothing to do with a choice of properties, as claimed. The "multipliers" discussed in Muckley relate to the particular designer or designers associated with an element type. See col. 1, lines 63 - 67. The Office Action has not shown how such "multipliers" relate to the claimed cost of interaction and in fact it cannot because the "multipliers" do not relate to interactions at all.

The Office Action cites col. 2, lines 24-35 as relating to element e). Applicant respectfully submits that neither the cited portion of Muckley nor any other part thereof relates to the subject matter of element e). Rather, the cited portion relates to applying numbers data (apparently regarding the number of object oriented elements) to a formula and performing various iterations. That has nothing to do with assigning a choice of properties to components for a subsequent at least partial run of the program, as claimed. The "numbers data" have

nothing to do with a choice of properties. Examination of the discussion at col. 2, lines 7-55 reveals that the numbers data is a weight used in an estimate of time that a designer would take to complete a new design. The property or properties assigned to a component as claimed is a property that relates to the component and not to an estimate of time. The Office Action (at pages 8-9) attempts to respond to Applicant's arguments made in response to the prior office action but fails to address how it contends that Muckley discloses anything even remotely like an interaction between components. The Office action further contends that "Applicant makes general allegations and does not point out errors in the rejection." Applicant strongly disagrees pointing out the **many** specific differences between the claims and Muckley set forth in the prior and current responses. Applicant further contends that it is the Office Action that is general and fails to specifically point out how the claim elements purportedly read on Muckley. Consider, for example, that the Office Action states that Muckley discloses a time estimator which would optimize execution of a program. Amazingly, such speculation (note the use of "would") is unsupported by either office action. Applicant's claimed invention is not just an optimization of a program. Applicant's claims are quite specific on how the methods minimize the cost of interaction among components. However neither office action has used any analysis at the level of the claim specifics. Also consider that the office actions repeatedly cite terms such as "time estimator," "analyzing objects-oriented programs" and "multiplier" without showing how those terms relate to any claim language. Applicant thus requests that the Examiner reconsider the positions set forth in the Office Action in view of the foregoing comments. Claim 7 is not anticipated by Muckley for at least the same reasons that claim 13 is not.

II. Rejections under 35 U.S.C. §103

A. Claims 2-5 and 8-11 were rejected under 35 U.S.C. §103 as being unpatentable over Muckley in view of so-called admitted prior art. Claims 2-5 and 8-11 have been cancelled without prejudice and replaced by the similar new claims 13-16 which are patentable for the reasons stated below.

Claim 2 has been cancelled but new claim 14 is similar. Claim 14 is patentable over the cited references at least for the reasons discussed above with respect to claim 13 from which it

depends. Moreover, the Office Action concludes in error that there is any admitted prior art. Applicant's claims all relate to combinations of elements. The mere existence of some of the elements of a claim does not render the claims obvious. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1053, 5 USPQ2d 1434, 1440 (Fed. Cir. 1988). See also Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 1462, 221 USPQ 481, 489 (Fed. Cir. 1984). The invention is in the combination and the background section of the patent application neither teaches not suggests the claimed combinations. More specifically, Applicants do not claim to have invented string representations, but do claim to have invented the claimed combinations of steps and instructions. Moreover, Applicants have not conceded that the prior art disclosed or suggested that the amount of interaction measured in step (b) comprise a frequency of interaction. The language quoted by the examiner relates to "manipulation" of implementation properties. None of the claimed steps recite "manipulating" implementation properties.

Moreover, the cited rationale for making this combination is not found anywhere in the prior art. "When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references." In re Rouffet, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998) (citing In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987)). The showing of a motivation to combine must be clear and particular, and it must be supported by actual evidence. Teleflex Inc. v. Ficosa North Amer. Corp., 299 F.3d 1313 (Fed. Cir. 2002). The case law makes clear that the best defense against hindsight-based obviousness analysis is the rigorous application of the requirement for a showing of a teaching or motivation to combine the prior art references. See In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight." Id. Ecolochem v. Southern California Edison, 228 F.3d 1361 (Fed. Cir. 2000). The combinations of references in the Office Action cite only general and conclusory reasons for the combination of references and such combinations are thus improper.

Using the Applicant's own discussion of the problem solved by the invention against the

Applicant would make obviousness determinations a matter of whim and hence would not be proper. Claims 15-18 are dependent on claim 13 and are patentable over the cited references for the reasons discussed above with respect to claims 13 and 14.

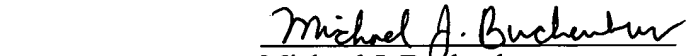
B. Claims 6 and 12 were rejected under 35 U.S.C. §103 as being unpatentable over Muckley in view of US Patent No. 5,598,559 to Chaudhuri. Claims 6 and 12 have been cancelled without prejudice and replaced by the similar new claims 18 and 24, respectively, which are patentable for the reasons stated below.

Claim 18 is dependent on claim 13 and is patentable for at least the same reasons discussed with respect to claim 13. Further, the Office Action concedes that Muckley does not disclose the limitation "wherein the step (d) of determining the choice is carried out by building a graph with nodes representing program components and edges that join adjacent nodes representing interaction therebetween, each edge being characterized by a cost of each interaction, then using a graph cutting technique to find a minimum cut of the graph." However, the Office Action contends that Chaudhuri discloses "wherein the step d) of a step of determining the choice carried out by building a graph with nodes representing interaction therebetween ..." citing col. 1, lines 66-67 and col. 2, lines 1-13. The cited part of Chadhuri relates to a database management system wherein nodes represent operations to be performed. That has nothing to do with using nodes to represent program components and using edges to represent interactions between the nodes. In fact it mentions no interactions. Applicant also submits that claim 18 is not rendered obvious by the combination of Muckley with Chaudhuri because the Office Action has shown no teaching, motivation, or reason for combining the references as suggested by the Office Action. The Office Action contends that Chadhuri "discloses in an analogous computer system" wherein step d) is performed as claimed. As discussed above, Chadhuri teaches nothing even close to the requirements of element d) or of element d) as further limited by claim 18. Moreover, as discussed above with respect to claim 13, several of the elements of those claims are missing from Muckley. The Office Action has not shown how the combination of Muckley and Chaudhuri teaches or suggests the elements of the independent claims and therefore cannot make a *prima facie* case of obviousness on any of the dependent claims. Chaudhuri relates to

techniques for optimizing database queries and more particularly to a method and apparatus for optimizing queries by having group-by operators. That has nothing whatsoever to do with the problem of minimizing the number of transformations of data property values and thus those skilled in the art would not look for solutions to such problems in Chaudhuri. Chaudhuri concerns the need for a robust technique to optimize queries having group-by operators. By contrast, Applicant's claimed invention is a solution to the problem of minimizing the number of transformations of implementation property values. These problems are so different that those of ordinary skill in the art would not be motivated to look at Chaudhuri for solutions to problems in minimizing costs of interaction between components in programs. Similarly, claim 24, as a computer-readable medium counterpart of claim 18, is rendered obvious by the combination of Muckley with Chaudhuri for the foregoing reasons. Applicant respectfully requests that the rejections under 35 U.S.C. §103 be withdrawn.

For the foregoing reasons, Applicant respectfully requests allowance of the pending claims and that a timely Notice of Allowance be issued in this case.

Respectfully submitted,



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I hereby certify that this Amendment and Response to Office Action, and any documents referred to as attached therein, are being deposited with the United States Postal Office with sufficient postage as first-class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Michael J. Buchenhorner

Date: October 5, 2005

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